

**76136**  
Ilmenite Basalt  
86.6 grams

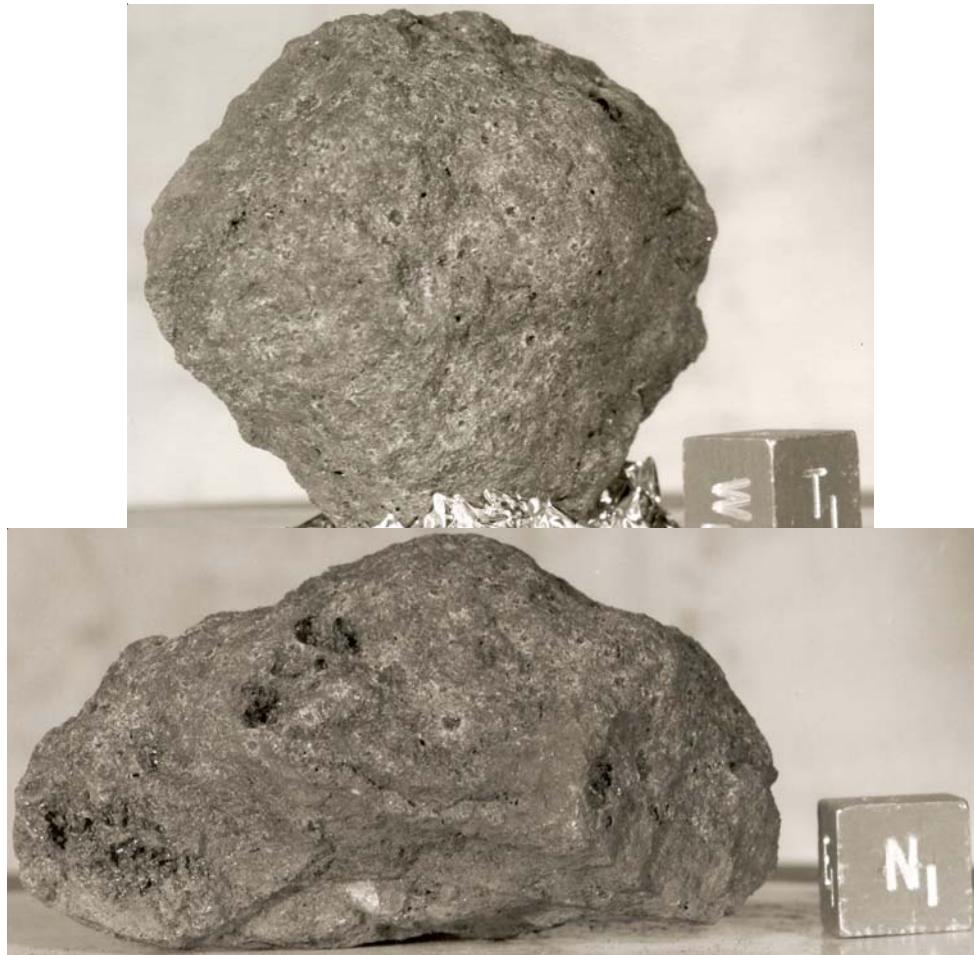


Figure 1: Photos of 76135. Cube is 1 cm. S73-23923 and 934.

### Introduction

76136 is a rare example of a mare basalt that has been transported across the mare-highland boundary at the base of the North Massif, Apollo 17. Its surface is rounded by micrometeorite bombardment (figure 1). It is an ilmenite basalt with olivine phenocrysts.

### Petrography

Brown et al. (1975) give the modal mineralogy of 76136 and other Apollo 17 basalts. Elongate ilmenite and equant olivine are set in a holocrystalline intersertal matrix (figure 2). Olivine is surrounded by pyroxene. Pyroxene chemistry has not been studied.

Usselman et al. (1975) experimentally reproduced textures and mineral chemistries of high-titanium mare basalts.

### Chemistry

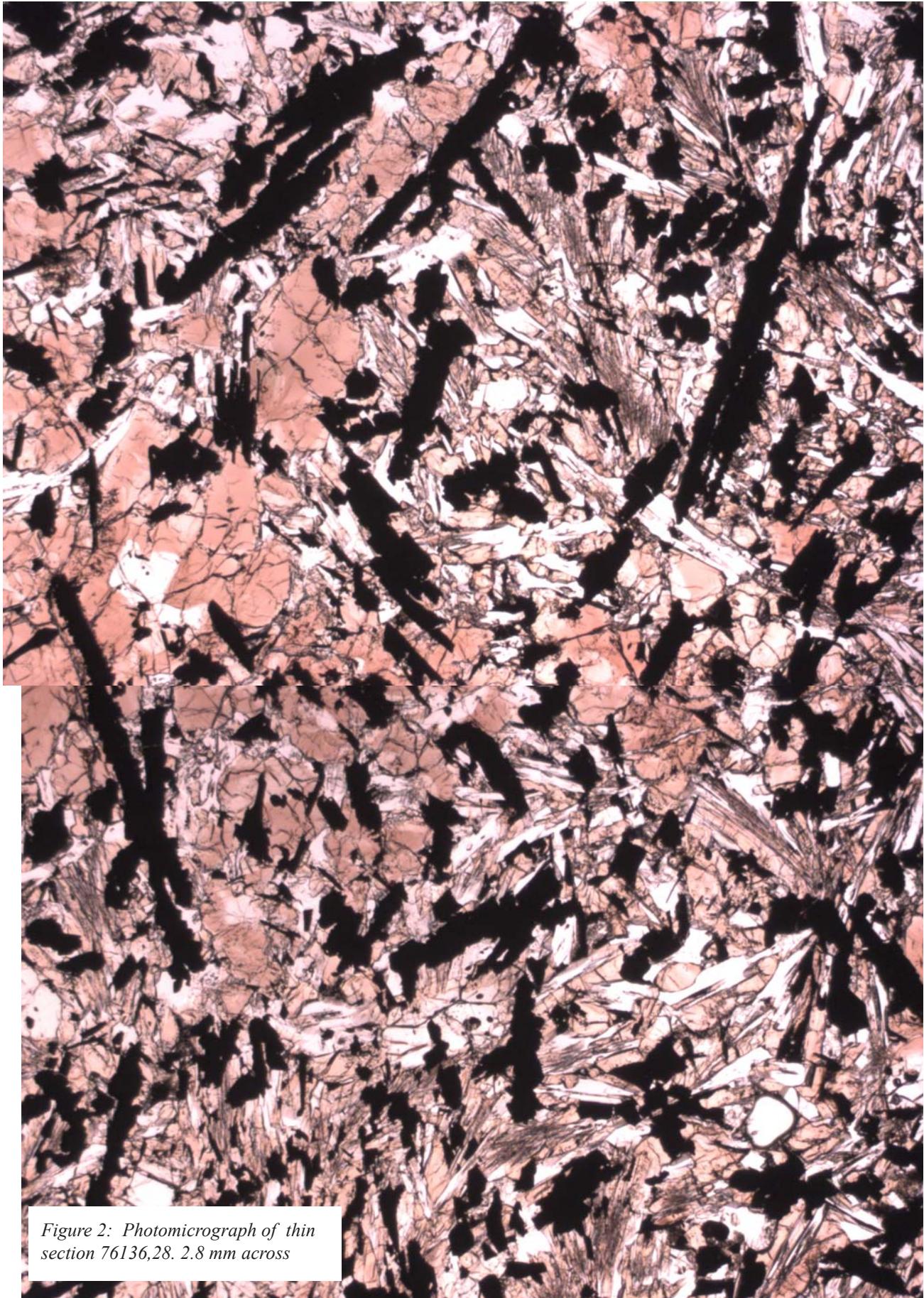
The chemical composition of 76136 was determined by Rhodes et al. (1976). It is a type A, Apollo 17 basalt (figures 4 and 5).

### Radiogenic age dating

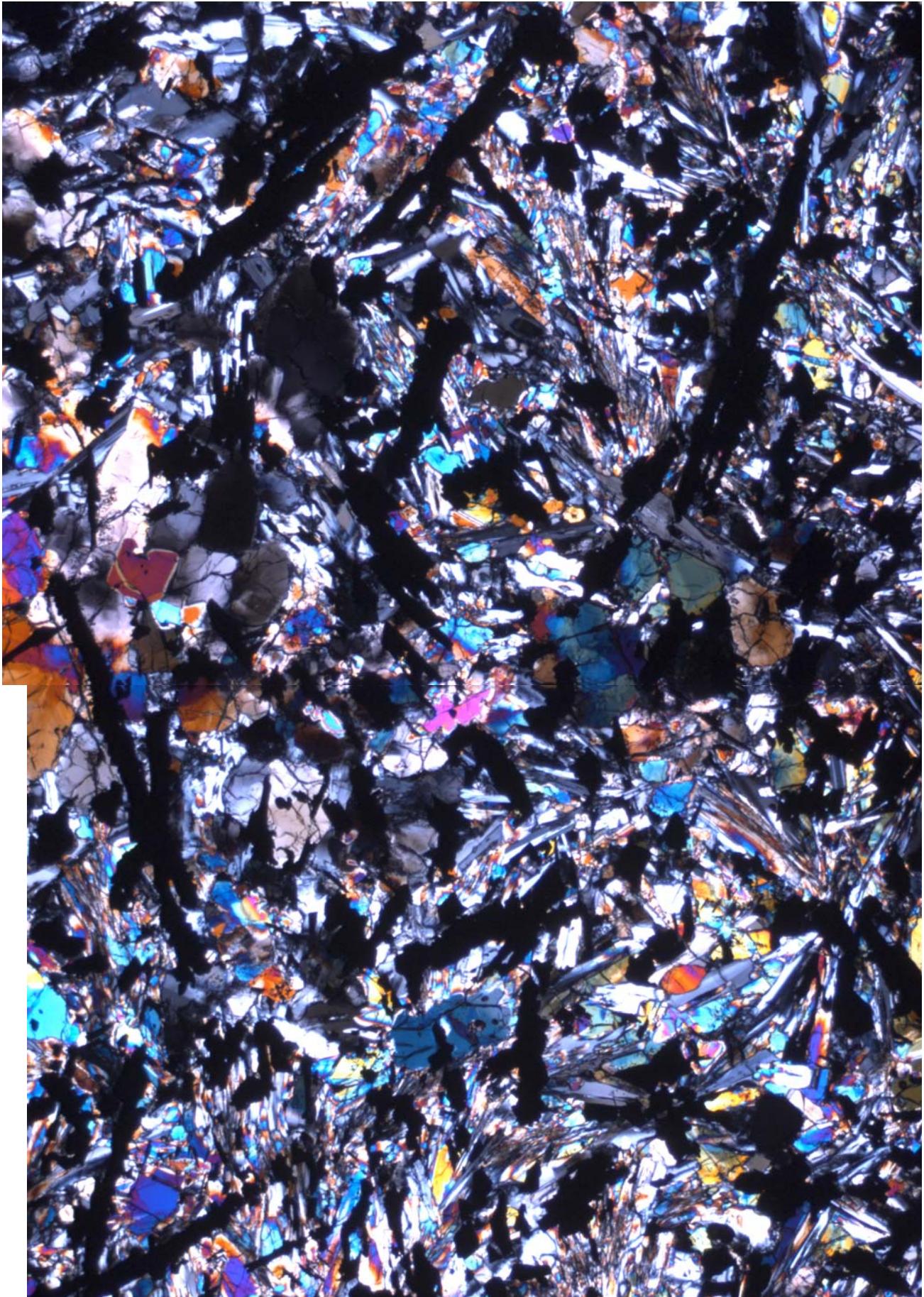
Nyquist et al. (1976) determined Rb, Sr and  $\text{Sr}^{87/86}$ , but did not determine an age.

### Processing

There are 7 thin sections.



*Figure 2: Photomicrograph of thin section 76136, 28. 2.8 mm across*



Lunar Sample Compendium  
C Meyer 2011

**Table 1. Chemical composition of 76136.**

reference Rhodes76

weight

SiO <sub>2</sub> %	38.6	(a)
TiO <sub>2</sub>	12.64	(a)
Al <sub>2</sub> O <sub>3</sub>	8.65	(a)
FeO	19.12	(a)
MnO	0.28	(a)
MgO	8.61	(a)
CaO	10.53	(a)
Na <sub>2</sub> O	0.38	(a)
K <sub>2</sub> O	0.06	(a)
P <sub>2</sub> O <sub>5</sub>	0.06	(a)
S %	0.18	(a)
sum		

Sc ppm 82 (c)

V

Cr 3010 (a)

Co 18.7 (c)

Ni

Cu

Zn

Ga

Ge ppb

As

Se

Rb 0.67 (b)

Sr 190 (b)

Y

Zr

Nb

Mo

Ru

Rh

Pd ppb

Ag ppb

Cd ppb

In ppb

Sn ppb

Sb ppb

Te ppb

Cs ppm

Ba 83.7 (b)

La 6.91 (b)

Ce 23.8 (b)

Pr

Nd 26.2 (b)

Sm 10.9 (b)

Eu 2.14 (b)

Gd 16.4 (b)

Tb

Dy 19.3 (b)

Ho

Er 11.4 (b)

Tm

Yb 10.2 (b)

Lu 1.42 (c)

Hf 9.4 (b)

Ta

W ppb

Re ppb

Os ppb

Ir ppb

Pt ppb

Au ppb

Th ppm

U ppm

technique: (a) XRF, (b) IDMS, (c) INAA

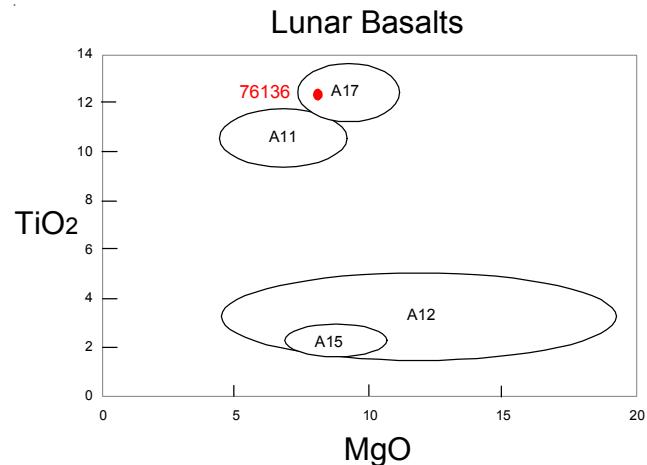


Figure 3: Composition of lunar basalts.

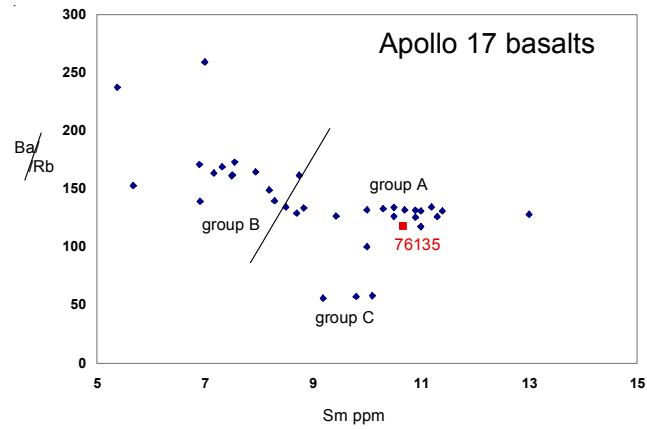


Figure 4: Neal's classification of Apollo 17 basalts.

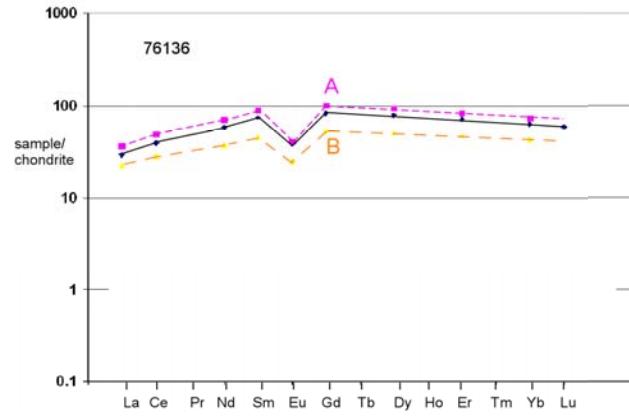
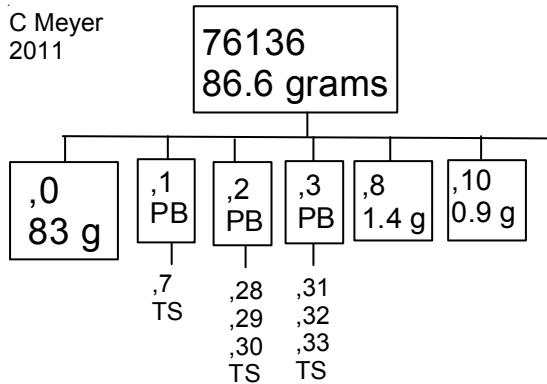


Figure 5: Normalized rare-earth-element diagram for 76136 compared with A and B types of Apollo 17 basalts.



### References for 76136

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